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ABSTRACT

Isolating risk factors associated with drug and alcohol use and abuse has been a major task for many researchers. A study was designed to determine whether longitudinal models of social conformity and drug and alcohol use would provide similar results for males and females. Data were obtained from 654 young adults (192 males, 492 females) who had participated in a longitudinal study of adolescent development and drug use. The impact of social conformity on alcohol and hard drug use was tested in a series of latent variable longitudinal models separately for men and women and then contrasted directly. Social conformity measured at high school age (year 5 of the study) was used as a predictor of less alcohol and hard drug use at young adulthood (year 9). The results showed that social conformity predicted less hard drug use for both males and females and less alcohol use for females only. Structural patterns between latent variables were quite similar for both males and females for hard drug use, but less so for alcohol use. These findings suggest social implications of the differential acceptability of alcohol use by sex. (Author/NB)

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Social Conformity and Substance Use:

Sex Differences on Longitudinal Associations

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Abstract

The impact of Social Conformity on Alcohol and Hard Drug Use was tested in a series of latent variable longitudinal models, separately for men and women and then contrasted directly. Social Conformity measured at Year 5 (high school age) of a longitudinal study of 654 subjects was used as a predictor of less Alcohol and Hard Drug Use at Year 9 (young adulthood). It was found that Social Conformity predicted less Hard Drug Use for both males and females and less Alcohol Use for females only. Structural patterns between latent variables were quite similar for both males and females for Hard Drug Use, but less so for Alcohol Use. The social implications of the differential acceptability of Alcohol Use by sex are discussed.

Social Conformity and Substance Use:
Sex Differences on Longitudinal Associations

Isolating risk factors associated with drug and alcohol use and abuse has been a major endeavor for many researchers (e.g., Newcomb, Maddahian, & Bentler, in press). A recent review by Chassin (1984) found that researchers are exploring demographic variables, intrapersonal factors (e.g., personality and attitudes), and interpersonal influences (e.g., parents and peers) to find possible causes or risk factors for drug use. The personality trait of rebelliousness has been associated frequently with drug use (Chassin, 1984; Donovan, Jessor & Jessor, 1983; Huba & Bentler, 1982; Jessor & Jessor, 1978). Furthermore, the specific traits of law abidance, religious commitment and liberalism have been used as measures of deviance or rebelliousness (Huba & Bentler, 1984). Studies have found the traits of low law abidance, a lack of religious commitment, and liberalism to be associated with drug and alcohol use (Bry, McKeon & Pandina, 1982; Donovan et al., 1983; Gorsuch & Butler, 1976; Huba & Bentler, 1982; Jessor & Jessor, 1978; Kandel, 1980; Newcomb et al., in press). However, it remains unclear whether these associations between rebelliousness or lack of social conformity and substance use are equally evident for men and women.

Although there has been a slight decline in teenage drug use in the past few years, U.S. adolescents continue to report the world's highest levels of drug involvement (Johnston, O'Malley, & Bachman, 1985). Of American teenagers, 62% try at least one illicit drug before finishing high school, 40% have used a drug other than marijuana, and 93% have tried alcohol (Johnston et al., 1985). Longitudinal data on drug use differences between males and females in the general population indicate that there has been a narrowing of the previous trend of greater drug and alcohol use by males (Kalant, 1980).

The present study was designed to determine if longitudinal models of social conformity (i.e., lack of rebelliousness) and drug and alcohol use provide similar results for men and women. Two cross-lagged longitudinal, latent variable models, one for Social Conformity and Hard Drug Use and one for Social Conformity and Alcohol Use, were used to analyze the structural relations between these variables for both males and females. It was hypothesized that: 1) Social conformity in high school would predict both social conformity and less hard drug (or alcohol) use in young adulthood; 2) hard drug (or alcohol) use in high school would predict hard drug (or alcohol) use and a lack of social conformity in young adulthood; and 3) Males and females would be similar in the structural patterns between the latent variables.

Method

Subjects

Data were obtained from 654 young adults (192 males, 462 females) who had participated in Years 5 and 9 of a longitudinal study of adolescent development and drug use (Huba & Bentler, 1982; Newcomb & Bentler, in press). The study originally began with 1634 adolescents who were in the seventh, eighth and ninth grades located at 11 Los Angeles County schools. Table 1 describes the composition of the sample.

Measures

Personality traits were assessed using a self-rating test especially modified for this research program, but based on the Bentler Psychological Inventory (Bentler and Newcomb, 1978; Huba & Bentler, 1982). Based on previous research (Huba & Bentler, 1982), the three traits of law abidance, liberalism, and religious commitment were chosen as indicators of a latent variable entitled Social Conformity.

A latent Hard Drug Use variable was constructed through measures of extent of use of uppers (including cocaine, amyl nitrate, inhalants, and amphetamines), downers (including minor and major tranquilizers, barbiturates, sedatives, anti-depressants, heroin, and other narcotics), and psychedelics (including LSD, PCP, and other psychedelics). A latent variable of Alcohol Use was derived from frequency measures of beer, wine, and liquor use.

Results

Initial Sex Differences

A series of two-way repeated measures ANOVAs were performed using sex and time as the independent factors to assess mean differences on the alcohol, hard drug, or personality measures. Table 2 contains the results of these analyses. No sex differences were found on any of the hard drug measures; downer use decreased and upper use increased over time. There were significant sex differences on all alcohol measures except hard liquor: Males drank more beer and females drank more wine; males reported greater general Alcohol Use than women. All alcohol measures showed greater use over time. The only significant interaction was for beer: Men reported a greater increase over time than women. Personality differences were found between the sexes for law abidance and religious commitment, with females scoring higher on these traits.

Latent Variable Models

The same basic latent variable models for Social Conformity and Alcohol Use and Social Conformity and Hard Drug Use were tested for the sexes separately. Correlated errors were allowed between the same variables over time, i.e., between law abidance at Year 5 and law abidance at Year 9. Minor correlated errors were added to improve the fit of the models separately for each group. Paths that were not significant were removed from the models.

Table 3 presents the results of the separate analyses of Hard Drug Use and Alcohol Use for males and females. The final models fit the data quite well for both groups. Chi-square differences between the initial models and final models are all significant.

Alcohol: The original Alcohol Use model for the females fit moderately well, wherease the fit for the males was somewhat better. The fit for both groups was improved by adding a structural path from Social Conformity Year 5 to wine use Year 9. Additionally, the fit for both male and female models was improved by adding one correlated error each. The path between Alcohol Use Year 5 and Social Conformity Year 9 was non-significant and was removed in both models. Stability paths were significant for both groups. Social Conformity Year 5 predicted significantly less Alcohol Use Year 9 for the females but, interestingly, was not a significant predictor for the males. Figures 1 and 2 show the final models for the females and males respectively.

Hard Drugs: The initial Hard Drug Use model for the females did not fit the data very well. The final model eliminated two extreme outliers and allowed three correlated errors. Initially, the basic model also did not fit the male data very well although by adding three correlated errors the fit for the men was significantly improved. The paths between Hard Drug Use Year 5 and Social Conformity Year 9 were eliminated since they were not significant for either group. All stability paths were significant. Social Conformity led to less Hard Drug Use for both males and females. The final models for the females and males are shown in Figures 3 and 4 respectively.

Comparisons Between the Males and Females

Using the well-fitting models for each group, the parameter estimator for men and women were compared simultaneously with various parameters constrained to equality using multiple-group analyses (Jöreskog & Sörbom, 1984). It can

be seen from Figures 3 and 4 that the structural path parameter estimates were quite similar for the Social Conformity-Hard Drug Use models for males and females. This was not the case for the Social Conformity-Alcohol Use models (Figures 1 and 2). Table 4 summarizes the results of constraining various parameters of the separate models for the males and females to be equal.

Of primary interest were constraints on the structural paths between the latent variables. The initial fit of the multiple model for Hard Drug Use with no invariance was good. Constraining either the cross-lag paths or the stability paths to be invariant across the groups made no significant difference in the chi-square values of the models. Constraining the entire structure to be invariant across the groups was too strong a hypothesis.

The initial fit for the structural paths of the Social Conformity-Alcohol Use model was moderately good. Adding different constraints among the structural paths did not significantly change the fit of the model.

Invariance constraints were also imposed on the factor loadings and correlations among the factors. All of these constraints produced significantly worse fits indicating that these parameters were not identical across the sexes.

Discussion

There were three hypotheses of interest in the present study. Paths between early Hard Drug or Alcohol Use and later Social Conformity were not significant for any group. All stability paths were significant. Social Conformity Year 5 was found to predict less Hard Drug Use Year 9 for both males and females. Of course, rebelliousness is not the only factor leading to hard drug use. Other causes of drug use include attitudes, stress, peer models, and family influences. The results do indicate however that rebelliousness is one significant predictor of hard drug use.

The fact that Social Conformity significantly predicted less Alcohol Use only for the females is a fascinating comment on the relative social acceptability of drinking among males, especially beer. Also, the significant positive path between early Social Conformity and later wine use points out the acceptability of wine use for both sexes. American advertising also highlights this by slanting most beer commercials toward men, while wine advertisements show both men and women.

The final hypothesis asserted that there would be only minor differences between the sexes on Social Conformity predictors of Hard Drug and Alcohol Use. The similar parameters found for the relationships between the predictors for Hard Drug Use indicate that this hypothesis was confirmed for this drug. However, the causes of alcohol use were less similar for males and females, although the direct two-group tests indicated that the apparent parameter differences were not statistically significant. Thus it can be concluded that the causal effects of social conformity or lack of rebelliousness on later substance use were quite similar for men and women.

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Table 1

Description of Sample

Variable	Number of Subjects	Percent of Sample
Total	654	100%
Sex		
- Male	192	30%
- Female	462	70%
Age		
- 21	253	39%
- 22	214	33%
- 23	170	26%
- 24	17	2%
Ethnicity		
- Black	97	15%
- Hispanic	64	10%
- White	432	66%
- Asian	61	9%
Current Life Activity		
- Military	17	3%
- Junior college	79	12%
- University	139	21%
- Part-time job	89	14%
- Full-time job	305	47%
- None	25	4%
Income Last Year		
- None	62	9%
- Less than $5000	215	33%
- Between $5000 and $15000	300	46%
- Over $15000	76	12%
Current Living Arrangements		
- Alone	27	4%
- With parent(s)	311	48%
- Spouse	68	10%
- Spouse and child(ren)	43	7%
- Cohabitation	58	9%
- Dormitory	37	6%
- With roommates	81	12%
- Other	29	4%

Table 2

Results of Repeated Measures Analyses of Variance by Sex and Time between Drug and Personality Items

Variables	By Sex	By Time	Interaction
Hard Drug Use Variables			
Use of uppers	n.s.	F=24.43***	n.s.
Use of downers	n.s.	n.s.	n.s.
Use of psychedelics	n.s.	F=4.05*	n.s.
General Use of Hard Drugs	n.s.	n.s.	n.s.
Alcohol Variables			
Use of beer	F=64.8***	F=77.35***	F=25.68***
Use of wine	F=9.85***	F=69.02	n.s.
Use of liquor	n.s.	F=53.45	n.s.
General Use of Alcohol	F=7.88**	F=112.43***	n.s.
Personality Variables			
Law abidance	F=17.66***	F=57.29***	n.s.
Liberalism	n.s.	F=14.73***	n.s.
Religious commitment	F=12.52***	n.s.	n.s.

Uppers use increased over time, psychedelics use decreased. Males used more beer, females more wine, males more general use of liquor.

*p < .05; **p < .01; ***p < .001.

n.s. = not significant.

Table 3

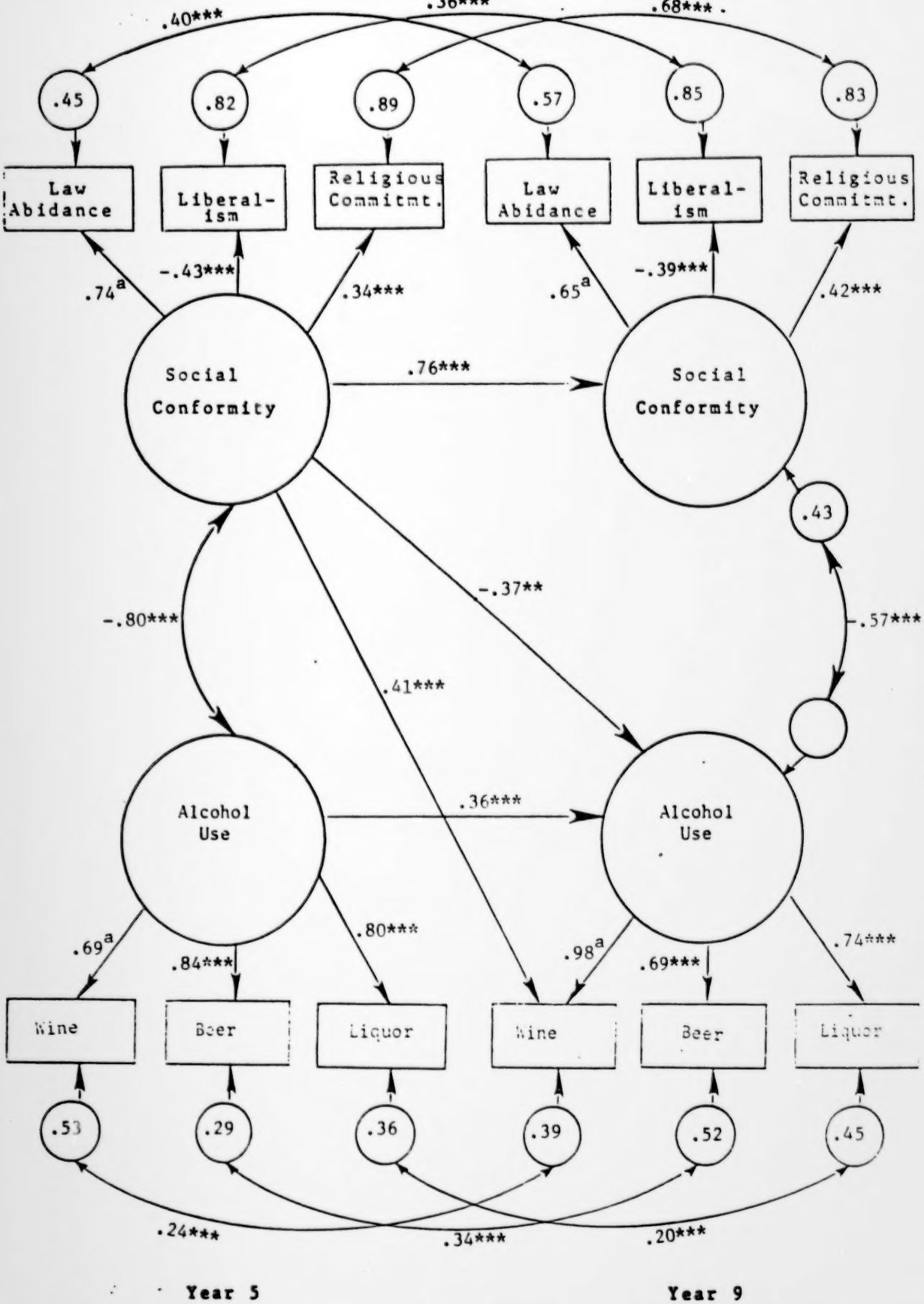
Summary of Model Modifications

	Chi-Square	Df	p	Normed Fit index
Social Conformity and Alcohol Use				
Females				
H1: Correlated errors only between same variables across time	85.86	42	<.001	.96
H2: Structural path between social conformity Year 5 and wine Year 9; correlated error between liberalism Year 5 and law abidance Year 9.	53.80	41	.09	.97
χ^2 difference between H1 and H2	32.06	1	.001	
Males				
H1: Correlated errors only between same variables across time	62.88	42	.02	.93
H2: Structural path between social conformity Year 5 and wine Year 9; correlated error between wine Year 5 and liquor Year 9.	49.89	41	.16	.94
χ^2 difference between H1 and H2	12.99	1	.001	
Social Conformity and Hard Drug Use				
Females				
H1: Correlated errors only between same variables over time	101.19	42	<.001	.95
H2: 2 extreme outliers eliminated, correlated errors between uppers Year 5 and downers Year 9, downers Year 5 and psychedelics Year 9, uppers and psychedelics Year 5	43.42	41	.37	.98
χ^2 difference between H1 and H2	57.77	1	.001	
Males				
H1: Correlated errors only between same variables over time	86.58	42	<.001	.91
H2: Correlated errors between psychedelics Year 5 and downers Year 9, law abidance Year 9 and uppers Year 9, downers-psychedelics Year 5.	51.61	41	.12	.95
χ^2 difference between H1 and H2	34.97	1	.001	

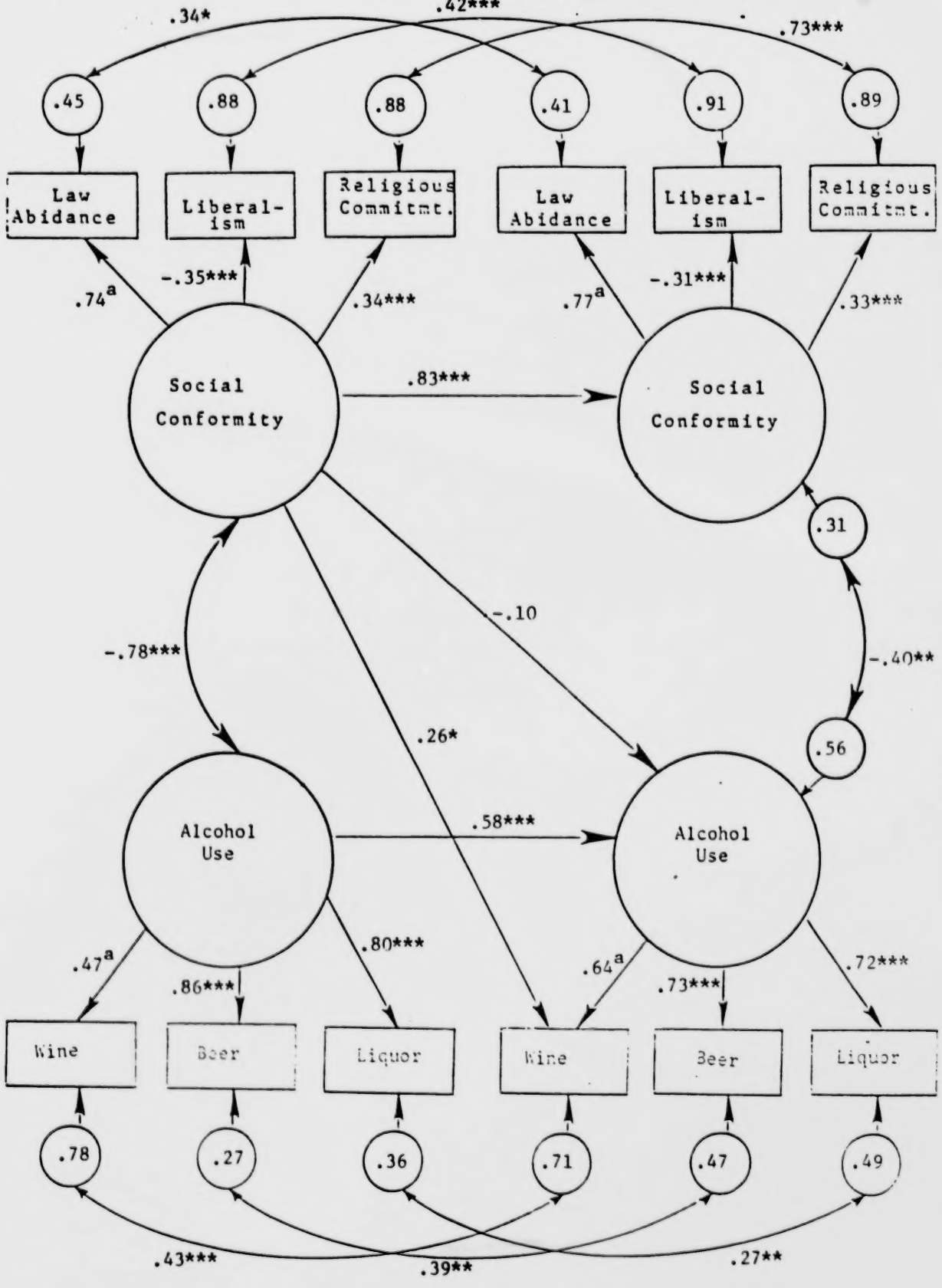
Table 4

Results From Multiple Group Comparisons

Model	Alcohol Chi-square	df	p	Hard Drugs Chi-square	df	p
No Constraints						
M1: Same patterns, no invariance constraints.	103.26	80	.04	92.63	78	.12
Constraints on Structural Paths:						
M2: Same patterns, crosslag paths constrained to be invariant.	105.34	82	.04	95.86	80	.11
M2-M1	2.08	2	n.s.	3.23	2	n.s.
M3: Same patterns and start values, stability paths constrainted to be invariant.	105.51	82	.04	94.19	80	.13
M3-M1	2.25	2	n.s.	1.56	2	n.s.
M4: Same patterns and start values, Beta invariant.	110.25	84	.03	123.07	82	.002
M4-M1	6.99	4	n.s.	30.44	4	p<.01
Constraints on Factor Loadings:						
M5: Invariant factor structure, confirmatory factor model.	122.16	89	.01	115.88	86	.02
M5-M1	19.9	9	p<.05	23.25	8	p<.01
Constraints on Factor Correlations:						
M6: Invariant factor correlations, confirmatory factor model.	122.26	90	.01	147.99	88	.000
M6-M1	19.0	10	p<.05	55.36	10	p<.01

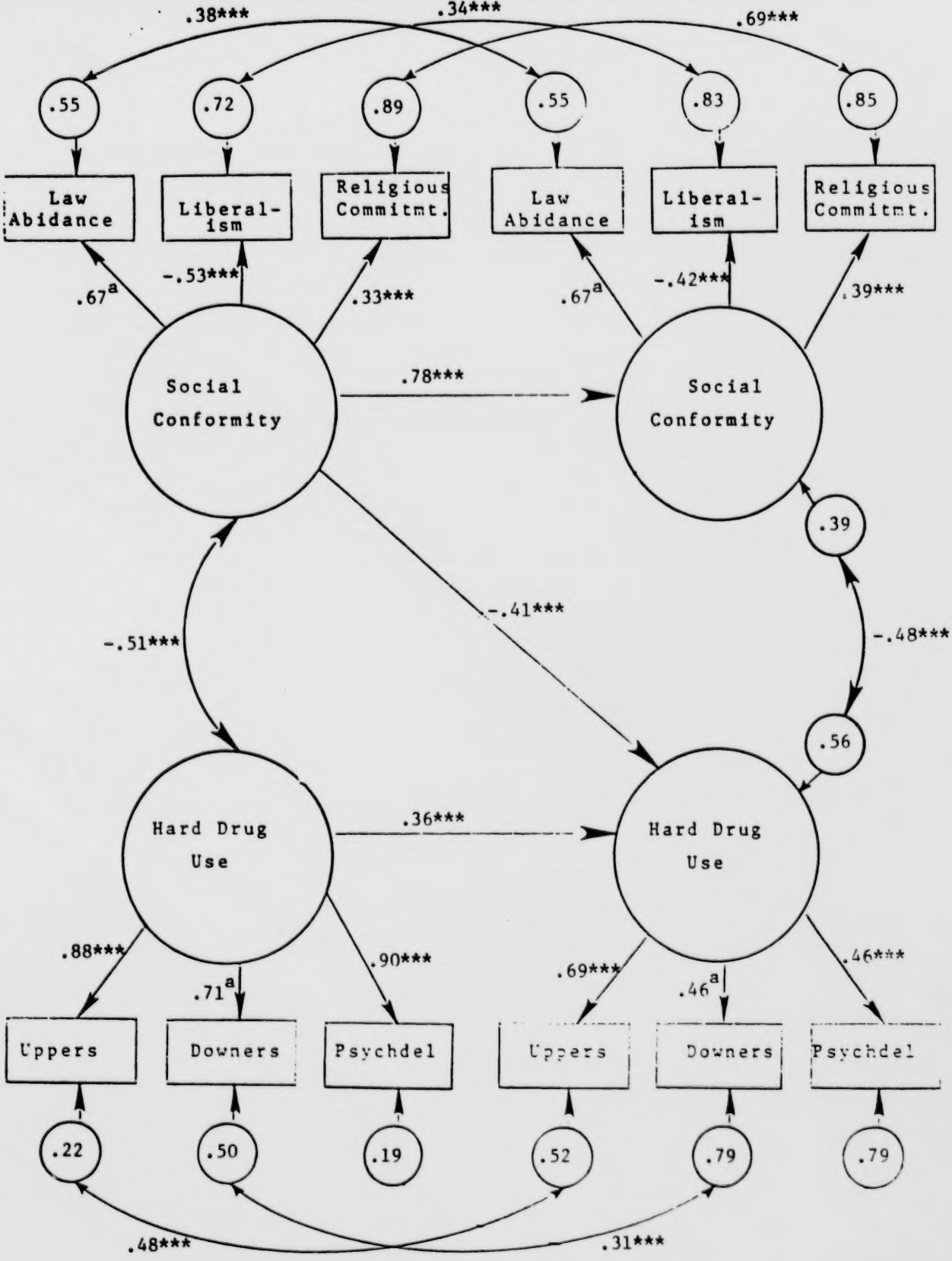


Alcohol Use Model for Females: Standardized solutions, residual variances in circles.
*** p <= .05, ** p <= .01, *** p <= .001. a: Fixed at 1 in unstandardized solution.**

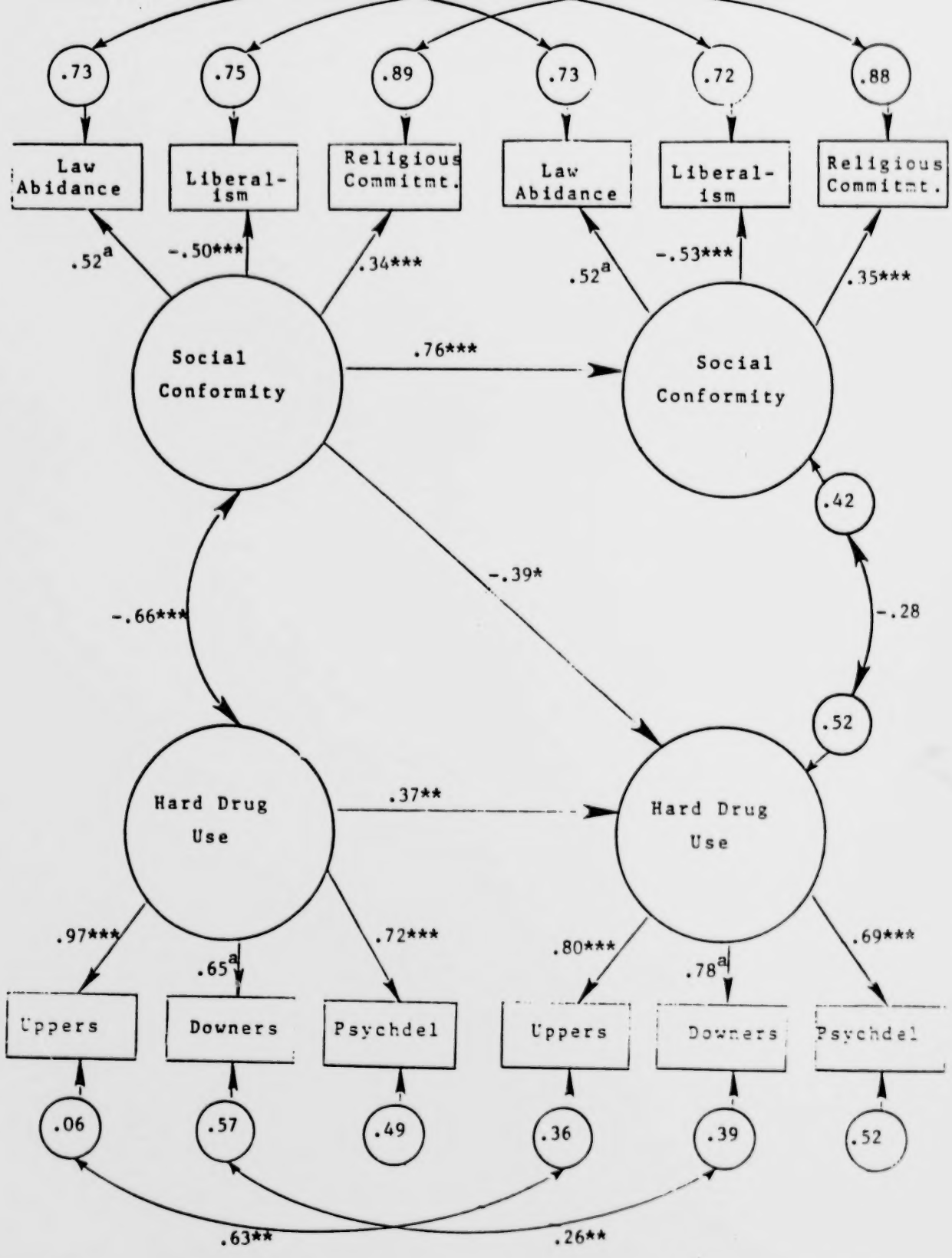


Year 5 Year 9

Alcohol Use Model for Males: Standardized solutions, residual variances in circles.
* p <= .05, ** p <= .01, *** p <= .001. a: Fixed at 1 in unstandardized solution.



Hard Drug Use Model for Females: Standardized solutions, residual variances in circles.
* p <= .05, ** p <= .01, *** p <= .001. a: Fixed at 1 in unstandardized solution.



Hard Drug Use Model for Males: Standardized solutions, residual variances in circles.
*** p <= .05, ** p <=.01, *** p <= .001. a: Fixed at 1 in unstandardized solution.**